

REMARKS

With this Amendment, the pending claims are claims 16-18 and 21. In the Office Action, the Examiner requested that Applicant update the status of the parent application, which issued as U.S. Patent No. 6,305,450. The Examiner rejected claim 16 under 35 U.S.C. § 102(b) as being anticipated by the McKissick et al. patent (U.S. Patent No. 3,735,791). The Examiner also rejected claim 16 under 35 U.S.C. § 102(b) as being anticipated by the Mills et al. patent (U.S. Patent No. 3,693,690). The Examiner also rejected claims 16 and 17 under 35 U.S.C. § 102(b) as being anticipated by the Brown patent (U.S. Patent No. 3,517,720). The Examiner rejected claims 17 and 18 under 35 U.S.C. § 103(a) as being unpatentable over the McKissick et al. patent, the Mills et al. patent, or the Brown patent. The Examiner rejected claims 19-21 under 35 U.S.C. § 103(a) as being unpatentable over the McKissick et al. patent, the Mills et al. patent, or the Brown patent in view of any one of the Takigawa et al. patent (U.S. Patent No. 4,345,632), the Kinoshita et al. patent (U.S. Patent No. 5,417,269), the Pfeiffer et al. patent (U.S. Patent No. 4,687,037), or the Suzuki et al. patent (U.S. Patent No. 5,375,639). The Examiner also stated that he did not receive a copy of the PTO 1449 Form for the Information Disclosure Statement ("IDS") that was filed with the application and, thus, the documents cited on that form have not been made of record in this application.

Amendments to Specification and the Drawings

As shown above in the Amendments to the Specification section, and as requested by the Examiner, Applicant has amended the priority paragraph to include

that the parent application has issued as U.S. Patent No. 6,305,450, on October 23, 2001. No new matter has been added by this amendment.

Applicant has also revised a paragraph in the specification to refer to a central rib centered on the equatorial plane of the mold that corresponds to at least one circumferential groove of the tire tread, as well as to at least one circumferential depression of the central rib that corresponds to the tread stiffening means of a circumferential groove of the tire tread. Applicant submits that no new matter has been added by these amendments, and that support for this amendment may be found in the specification in, for example, Fig. 7, as well as a comparison between Fig. 7 and Fig. 5. In addition, as shown above in the Amendments to the Drawings section, Applicant submits a replacement sheet of Figs. 4 and 7 to provide reference numerals in Fig. 7 for the central rib and the circumferential depression of the central rib. Applicant submits that no new matter has been added by these amendments to the drawings.

Claims 16-18 and 21

As shown above in the Amendments to the Claims section, Applicant has canceled claims 19 and 20, and added the subject matter of claims 19 and 20 to independent claim 16. In particular, Applicant has amended claim 16 to further recite "wherein the at least one circumferential groove of the tire tread band corresponds to a central rib centered on an equatorial plane of the mold" and "wherein the central rib includes at least one circumferential depression, and wherein the tread stiffening means corresponds to the at least one circumferential depression of the central rib."

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As noted above, the Examiner rejected claim 20 under 35 U.S.C. § 103(a) as being unpatentable over the McKissick et al., Mills et al., or Brown patent in view of any one of the Takigawa et al., Kinoshita et al., Pfeiffer et al., or Suzuki et al. patents. Regarding this rejection, after asserting that the McKissick et al., Mills et al., and Brown¹ patents each teach a tire mold substantially as claimed, the Examiner admitted that none of these patents discloses or suggests “a central rib on an equatorial plane of the mold, the rib including a circumferential depression.” (*Office Action*, p. 4.) Instead, the Examiner asserted that:

Each of the Takigawa et al., Kinoshita et al., Pfeiffer et al., or Suzuki et al. patents disclose a tire mold having a tread matrix including a central rib centered on an equatorial plane of the mold for forming a central circumferential groove in the tire, wherein the central rib includes a circumferential depression centered on the equatorial plane of the mold . . . It would have been obvious to one of ordinary skill in the art at the time of the invention to modify any one of McKissick et al., Mills et al., and Brown by providing the mold tread matrix with a well known and conventional central rib in order to produce a well known and conventional circumferential groove in the tire tread for improving wet traction. It would have been further obvious to a skilled artisan to have provided such a central rib with a circumferential depression for forming a raised rib in the circumferential groove of the tire tread, as disclosed in any one of Takigawa et al., Kinoshita et al., Pfeiffer et al. and Suzuki et al., in order to facilitate removal of pebbles from the circumferential groove, or in order to minimize undesired deformation of the tire carcass due to a relatively wide circumferential groove (as disclosed in Pfeiffer et al.), or in order to absorb excess rubber in the circumferential groove during vulcanization and thereby avoid undesired corrugated deformation of the tire belt layer during vulcanization (as disclosed in Suzuki et al.).

(*Id.* at pp. 4-5.)

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¹ The Brown patent does not disclose a mold. Instead, the Examiner asserted that this patent inherently discloses a tire mold. (*Office Action*, p. 3.)

There are three basic criteria for establishing a *prima facie* case of obviousness: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art references or the references when combined must teach or suggest all of the claim limitations. M.P.E.P. § 2143. The Examiner fails to make these requisite showings for several reasons.

First, Applicant respectfully asserts that the cited patents, either alone or in combination, do not disclose or suggest at least "wherein the at least one circumferential groove of the tire tread band corresponds to a central rib centered on an equatorial plane of the mold" or "wherein the central rib includes at least one circumferential depression, and wherein the tread stiffening means corresponds to the at least one circumferential depression of the central rib" as recited in Applicant's amended claim 16. Again, the Examiner acknowledged that the McKissick et al., Mills et al., and Brown patents do not disclose "a central rib on an equatorial plane of the mold, the rib including a circumferential depression." (*Office Action*, p. 4.) In addition, none of the Takigawa et al., Kinoshita et al., or the Pfeiffer et al. patents discloses a mold for vulcanizing a tire and, thus, none of these patents can disclose the above limitations.

With respect to the Suzuki et al. patent, this patent discloses a tire having protuberances 5 formed in a groove 2 wherein the protuberances are formed by rubber flowing into a cavity formed in a groove forming rib of a molding die. (See the Suzuki et

al. patent, col. 2, lines 33-36; col. 3, lines 48-52). However, the protuberances are not tread stiffening means. Instead, the Suzuki et al. patent discloses that the cavity formed in the groove forming rib of the molding die is present so that "when a green tire is vulcanized and molded, a portion of unvulcanized rubber which cannot sufficiently flow outside a zone at the center region of the wide groove forming rib [of the molding die] can be absorbed by the concavity, so that a push force to a lower located belt layer can be lessened." (*Id.* at col. 3, lines 52-57.) The Suzuki et al. patent further states that "[a]s a result, the belt layer does not undergo corrugated deformation" during vulcanization. (*Id.* at col. 3, lines 57-59.) Accordingly, because the Suzuki et al. patent does not disclose at least Applicant's "tread stiffening means," this patent also does not disclose or suggest at least "wherein the central rib includes at least one circumferential depression, and wherein the tread stiffening means corresponds to the at least one circumferential depression of the central rib" as recited in Applicant's amended claim 16.

Second, Applicant respectfully asserts that there is no suggestion or incentive in the cited references, or the knowledge generally available in the art, that would have motivated a skilled artisan to combine or modify the cited patents. The motivation to modify prior art must flow from some teaching in the art that suggests the desirability or incentive to make the modification needed to arrive at the claimed invention. See *In re Napier*, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995); see also M.P.E.P. § 2143.01 ("The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.") (emphasis in original.) As the Federal Circuit explained,

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Virtually all inventions are combinations of old elements. Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be an illogical and inappropriate process by which to determine patentability.

In re Rouffet, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998). Thus,

the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.

Id. at 1458.

The instant application is directed to an improved performance tyre and related manufacturing method and mold. The high-performance tyre includes a tread band that is provided with at least one circumferential groove that is suitable for ejecting water during traveling on a wet ground to avoid aquaplaning, combined with a particular axial profile of the belt that results from a mold having "a sectional profile of [a] radial interior surface [that] comprises two concave side portions, each being defined by a respective center and a respective radius of curvature." The present invention aims to avoid the localized and marked wear of the tread at its central area, where the wear depends on the anomalous expansion of the belt at the groove due to reduced structural strength of the tread due to a lack of material below the groove. Neither the primary nor the secondary references are directed to solving this problem.

For example, the McKissick et al., Mills et al., and Brown patents cannot be directed to solving this problem because they do not disclose or suggest a central

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groove formed in a tire tread having tread stiffening means and/or a central rib of a mold profile having at least one circumferential depression for forming the central groove of the tire tread having tread stiffening means.

In addition, the Takigawa et al., Kinoshita et al., Pfeiffer et al., or Suzuki et al. patents are not directed to solving this problem. First, the Takigawa et al. patent is directed to a tread with spaced projections in a stone ejecting groove. This patent discloses a groove 1 that includes a plurality of protrusions 5, where the purpose of the protrusions is to avoid stone-biting in the groove and to facilitate the discharge of stones from the groove. (See the Takigawa et al. patent, col. 2, lines 32-38.)

The Kinoshita et al. patent is directed to a pneumatic tire for heavy vehicles. This patent discloses a groove 1 having a plurality of platforms 2, 3, and 4, where the purpose of the platforms is to release stones caught in the groove. (See the Kinoshita et al. patent, col. 3, lines 27-31.)

The Pfeiffer et al. patent is directed to a pneumatic vehicle tire. This patent discloses a groove 10 having a rib-like raised portion 11, where, while the purpose of the rib-like raised portion is not explicitly stated, the patent states that its invention is intended to prevent undesired deformation of the tire carcass due to relatively wide circumferential grooves. (See the Pfeiffer et al. patent, col. 1, lines 20-23.) This purpose, however, is not directed to avoiding the localized and marked wear of the tread at its central area due to reduced structural strength of the tread due to a lack of material below the groove.

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Last, as discussed above, the Suzuki et al. patent discloses a groove 2 having a protuberance 5 formed by rubber flowing into a cavity formed in a groove forming rib of a molding die, where the cavity is provided so that unvulcanized rubber can be absorbed by the cavity so that a push force to a lower located belt layer can be lessened. (See the Suzuki et al. patent, col. 3, lines 52-59.)

For at least the foregoing reasons, Applicant submits that amended claim 16 is not obvious over the cited patents, either alone or in combination, and thus is allowable over these patents. Because claims 17, 18, and 21 depend from claim 16, these claims should be allowable for at least the same reasons that claim 16 is allowable. See M.P.E.P. § 2143.03 ("If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.") (*citing In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

PTO 1449 Form

Applicant submits herewith a copy of the PTO 1449 Form that was filed with the IDS filed with this application. While the Examiner stated that the PTO 1449 Form was "apparently inadvertently omitted," Applicant submits a copy of the postcard stamped by the PTO, indicating that the PTO received the IDS with the PTO 1449 Form. Applicant respectfully requests that the Examiner consider the documents listed on the PTO 1449 Form and indicate that they were considered by making appropriate notations on the Form.

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Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests the reconsideration and the continued examination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: October 24, 2003

By: 

Stephanie S. Conis Gauthier
Reg. No. 40,569

Attachments:

Replacement Sheet of Figs. 4 and 7

Copy of the PTO 1449 Form filed with the Information Disclosure Statement ("IDS") filed with the Application on September 25, 2001

Copy of the PTO-Stamped Postcard Indicating the PTO's Receipt of the PTO 1449 Form filed with the IDS filed on September 25, 2001

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Fig. 7

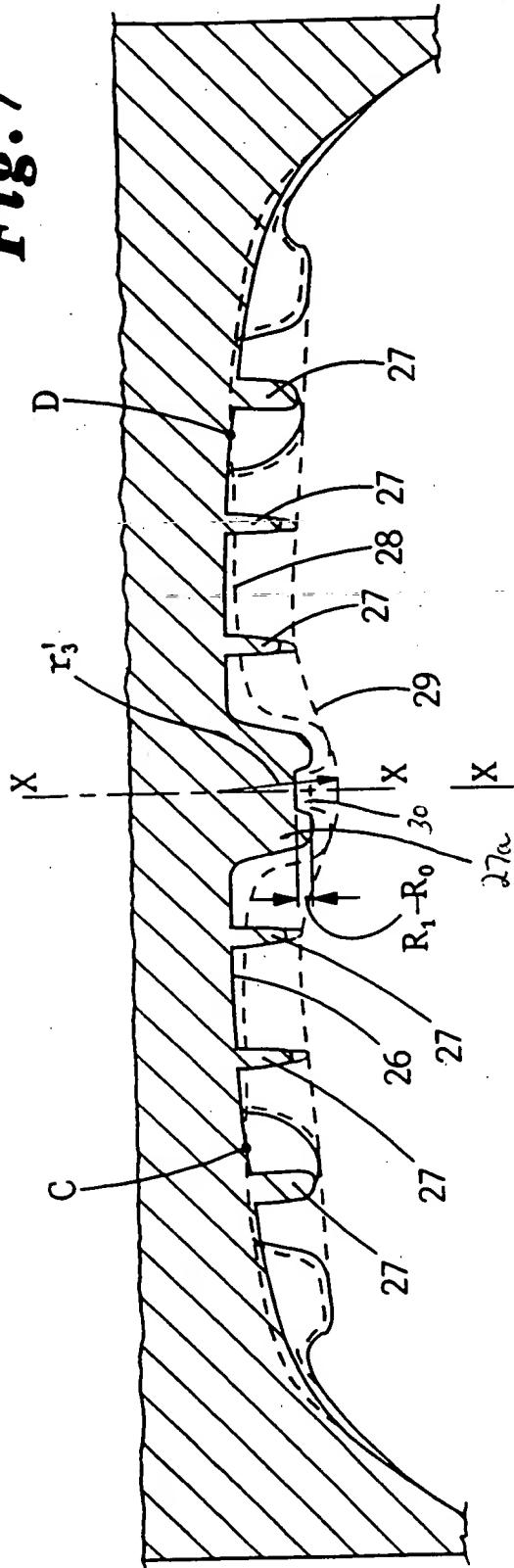
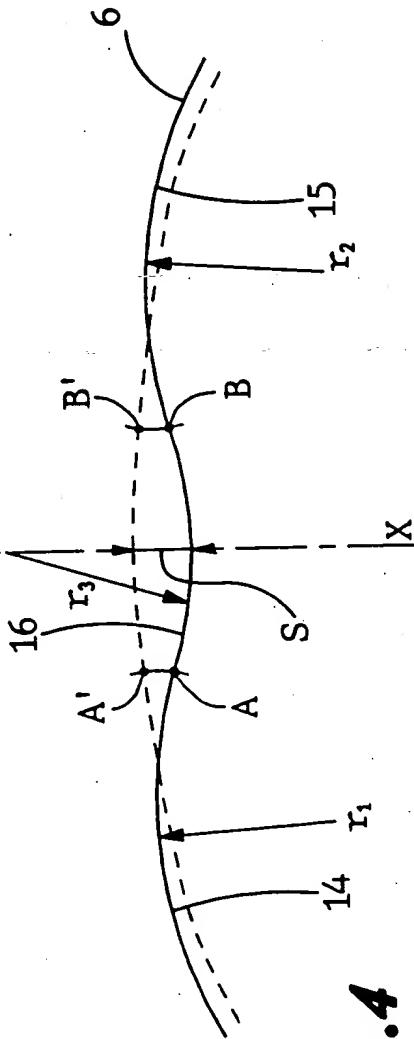


Fig. 4



PTO 49